CLAIMS

What is claimed is:

1. A method for comparing a color of a candidate specimen with a reference color
2   stored in a digital camera, the method comprising:

   capturing a digital image of the candidate specimen;
4   determining a color in the digital image of the candidate specimen; and

   computing the difference between the color of the candidate specimen
6   and the reference color.

2. The method of claim 1, further comprising:
2   illuminating the candidate specimen using flash for capturing the

   digital image of the candidate specimen.

3. The method of claim 1, further comprising:
2   normalizing the illuminant of the digital image to produce a

   normalized digital image, wherein the color of the candidate specimen is
4   determined from the normalized digital image.

4. The method of claim 1, further comprising:
2   specifying a color-analysis sub-image after activating a color-

   comparison mode in the digital camera and prior to capturing a digital image
4   of the candidate specimen.

5. The method of claim 1, further comprising:

2   reporting the difference.

6. The method of claim 5, wherein reporting the difference comprises representing

2   the color of the candidate specimen and the reference color on a color wheel.

7. The method of claim 5, wherein reporting the difference comprises representing

2   the color of the candidate specimen and the reference color on a color map.

8. The method of claim 5, wherein reporting the difference comprises representing

2   the color of the candidate specimen on a line having first and second ends, the first

end representing the reference color and the second end representing the set of all

4   colors that differ from the reference color by greater than a predetermined amount.

9. The method of claim 1, further comprising:

2   indicating when the difference is less than a predetermined tolerance.

10. The method of claim 9, wherein indicating when the difference is less than a

2   predetermined tolerance comprises representing on a color wheel the color of the

candidate specimen, the reference color, and a circular boundary concentric with

4   the reference color, the circular boundary encircling the color of the candidate

specimen and the circular boundary representing the predetermined tolerance.

11. The method of claim 9, wherein indicating when the difference is less than a

2   predetermined tolerance comprises representing the color of the candidate

specimen on a line having first and second portions, the first portion representing

4   the set of all colors that differ from the reference color by less than the

predetermined tolerance and the second portion representing the set of all colors

6   that differ from the reference color by an amount equal to or greater than the

predetermined tolerance.

12. The method of claim 9, wherein indicating when the difference is less than a

2   predetermined tolerance comprises emitting an audible signal.

13. The method of claim 1, wherein, prior to capturing a digital image of the

2   candidate specimen, the method further comprises:

        capturing a digital image of a specimen prior to capturing a digital

4   image of the candidate specimen;

        determining a reference color in the digital image of the specimen; and

6   saving the reference color.

14. The method of claim 13, further comprising:

2   normalizing the illuminant of the digital image of the specimen to

produce a normalized digital image of the specimen, wherein the reference

4   color is determined from the normalized digital image of the specimen; and

        normalizing the illuminant of the digital image of the candidate

6   specimen to produce a normalized digital image of the candidate specimen,

wherein the color of the candidate specimen is determined from the

8   normalized digital image of the candidate specimen.

15. The method of claim 13, further comprising:

2   illuminating the specimen using flash for capturing a digital image of

the specimen; and

4   illuminating the candidate specimen using flash for capturing a digital

image of the candidate specimen.

16. The method of claim 1, wherein the digital camera receives the reference color as

2 a set of color coordinates from an external source.

17. A method for comparing a color of a candidate specimen with a reference color

2 stored in a digital camera, the method comprising:

    capturing a digital image of the candidate specimen;

4   dividing the digital image into a plurality of sub-regions;

    determining a color for each of the sub-regions; and

6   computing the difference between the color of each region and the

reference color.

18. The method of claim 17, further comprising:

2   displaying in normal intensity each sub-region for which the

corresponding difference is less than a predetermined tolerance and displaying

4 all other sub-regions in reduced intensity.

19. A method for storing a reference color in a digital camera, the method comprising:

2   capturing a digital image of a specimen;

determining a reference color in the digital image of the specimen; and

4   saving the reference color.

20. The method of claim 19, further comprising:

2   illuminating the specimen using flash prior to capturing a digital image

of the specimen.

21. The method of claim 19, further comprising:

2   normalizing the illuminant of the digital image to produce a

normalized digital image of the specimen after capturing a digital image of the

4   specimen and prior to determining a reference color in the digital image of the

specimen, wherein the reference color is determined from the normalized

6   digital image of the specimen.

22. The method of claim 19, further comprising:

2   specifying a color-analysis sub-image prior to capturing a digital image

of the specimen.

23. A digital camera, comprising:

2   an optical system for producing optical images of subjects;

an imaging device for converting optical images received from the

4   optical system to corresponding digital images;

a memory for storing the digital images; and

6   a controller configured to compute the difference between a first color
         associated with a first digital image and a second color associated with a

8   second digital image.

24. The digital camera of claim 23, further comprising:

2   a flash unit for illuminating the subjects.

25. The digital camera of claim 23, further comprising:

2   an illuminant normalization module for normalizing the illuminant of
         the digital images..

26. The digital camera of claim 23, wherein the controller is adapted to extract a

2   color-analysis sub-image from each of the digital images.

27. The digital camera of claim 26, further comprising:

2   a display for specifying the color-analysis sub-image.

28. The digital camera of claim 23, further comprising:

2   a display for reporting the difference.

29. The digital camera of claim 23, further comprising:

2   a device for indicating when the difference is less than a predetermined
         tolerance.

30. A digital camera, comprising:

means for collecting optical images of subjects;

means for converting the optical images to corresponding digital

images;

means for storing the digital images; and

means for computing the difference between a first color associated

with a first digital image and a second color associated with a second digital

image.

31. The digital camera of claim 30, further comprising:

means for illuminating the subjects.

32. The digital camera of claim 30, further comprising:

means for normalizing the illuminant of the digital images.

33. The digital camera of claim 30, further comprising:

means for specifying a color-analysis sub-image for each of the digital

images.

34. The digital camera of claim 30, further comprising:

means for reporting the difference.

35. The digital camera of claim 30, further comprising:

means for indicating when the difference is less than a predetermined

tolerance.